PROGRAM

```
//producer consumer program
#include <stdio.h>
#include <stdlib.h>
int mutex = 1, full = 0, empty = 3, x = 0;
void main() {
    int n;
    void producer();
    void consumer();
    int wait(int);
    int signal(int);
    printf("\n1.PRODUCER\t2.CONSUMER\t3.EXIT");
    while (1) {
        printf("\nChoice: ");
        scanf("%d", &n);
        switch (n) {
        case 1:     if ((mutex == 1) && (empty != 0))
                        producer();
                    else
                        printf("BUFFER IS FULL");
                    break;
        case 2:     if ((mutex == 1) && (full != 0))
                        consumer();
                    else
                        printf("BUFFER IS EMPTY");
                    break;
        case 3:     exit(0);
        }
    }
}
int wait(int x) {
    return (--x);
}
int signal(int x) {
    return (++x);
}
void producer() {
    mutex = wait(mutex);
    full = signal(full);
    empty = wait(empty);
    x++;
    printf("\nproducer produces the item %d", x);
    mutex = signal(mutex);
}
void consumer() {
    mutex = wait(mutex);
    full = wait(full);
    empty = signal(empty);
    printf("\nconsumer consumes item%d", x);
    x--;
    mutex = signal(mutex);
}
```